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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,212	09/21/2001	Yoram Ofek	SYN 1779	6477
20787	7590	01/28/2005	EXAMINER	
SITRICK & SITRICK 8340 N LINCOLN AVENUE SUITE 201 SKOKIE, IL 60077			LI, SHI K	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 01/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/960,212

Applicant(s)

OFEK ET AL.

Examiner

Shi K. Li

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 19-61 is/are rejected.
- 7) ☒ Claim(s) 11-18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 33-61 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 33 recites the term "communications switch" in line 3 of the claim. However, the instant specification never uses the term "communications switch". Claim 33 recites the limitation "at least one communications link" in line 4 of the claim and recites "said communications link" in line 5 of the claim. Since there may be more than one communications link, it is unclear to which communications link "said communications link" refers. The claim recites the limitation "receiving data units from the communications link" in lines 12-13 of the claim and recites the limitation "transmitting data units to the communications link" in line 14 of the claim. That is, a communications switch receives and transmits from/to the same communications link. However, the instant specification does not teach a communication switch that receives and transmits from/to the same communications link. Claim 33 then recites "the communications links" in line 19 of the claim. It is unclear whether the communication switches are connected by at least one communications link or a plurality of communications links.

The same indefiniteness applies to claim 57.

Claim Rejections - 35 USC § 103

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3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1-10, 19 and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acampora (A. Acampora, "A High Capacity Metropolitan Area Network Using Lightwave Transmission and Time-Multiplexed Switching", IEEE Transactions on Communications, Vol. 38, No. 10, October 1990) in view of Harrington (E. Harrington, "Synchronization Techniques for Various Switching Network Topologies", IEEE 1978) and Sabella (U.S. Patent 5,739,935).

Acampora discloses in FIG. 1 a space division switch with a plurality input links and a plurality of output links. Acampora discloses in FIG. 4 a detailed structure of the switch comprising wavelength demultiplexors for separating out the wavelength channels of each input link. Acampora discloses in FIG. 5 a wavelength mapping table. Since Acampora switches based on time frame as illustrated in FIG. 2, some clock signal is inherently required. The difference between Acampora and the claimed invention is that (a) Acampora does not teach a common time reference and (b) Acampora does not teach a tuned wavelength. Harrington teaches in FIG. 7 external time reference for switching system. External time reference uses a timing source to synchronize nodes in a network so that timing is accurate and switching is done at the frame boundary. One of ordinary skill in the art would have been motivated to combine the teaching of Harrington with the switching system of Acampora because high accuracy external time references exist for synchronizing timing so that switching can be done at frame boundary with very short guard interval. Thus it would have been obvious to one of ordinary

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skill in the art at the time the invention was made to use single external time reference, as taught by Harrington, in the switching system of Acampora because high accuracy external time references exist for synchronizing timing so that switching can be done at frame boundary with very short guard interval.

The combination of Acampora and Harrington still fails to teach tuning wavelength. Sabella teaches in FIG. 10 an optical cross-connect using tunable filters 62 and wavelength converters 64. One of ordinary skill in the art would have been motivated to combine the teaching of Sabella with the modified switching system of Acampora and Harrington because the optical cross-connect of Sabella is modular and new wavelengths and/or links can be modularly added in simple fashion. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the modular optical cross-connect of Sabella in the modified switching system of Acampora and Harrington because the optical cross-connect of Sabella is modular and new wavelengths and/or links can be modularly added in simple fashion.

Regarding claim 2, Acampora teaches in FIG. 2 to divide a channel into time frames.

Regarding claim 3, Sabella teaches to use tunable filters.

Regarding claim 4, the additional limitation fails to point out the significance and use of time cycle and super cycle and, therefore, does not carry any patentability weight. For example, Acampora teaches in FIG. 2 a time frame of 2 μ s. It is well known in the art that a minute comprises at least one second and a second comprises at least a time frame of 2 μ s.

Regarding claim 5, Acampora teaches in FIG. 5 to repeat switching pattern periodically every time frame.

Regarding claim 6, it is obvious that the switching pattern repeats every second and every minute because they contain multiple time frames.

Regarding claim 7, Acampora teaches in FIG. 4 wavelength demultiplexor.

Regarding claims 8-10, Acampora teaches in p. 1762, right col., first paragraph to insert short lengths of fiber for time alignment. Acampora teaches to mechanically select proper length to provide time equalization.

Regarding claims 19 and 26, Acampora teaches in FIG. 5 a permanent connection mapping. A permanent connection mapping remains the same for every time frame and each time cycle.

Regarding claim 23, Acampora teaches in FIG. 4 to multiplex wavelength for each output link.

Regarding claim 24-25, Acampora teaches in FIG. 1 network controller for controlling the switch.

5. Claims 20-21, 27 and 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acampora, Sabella and Harrington as applied to claims 1-10, 19 and 23-26 above, and further in view of Freeman ("Telecommunication System Engineering" by R. Freeman, John Wiley & Sons, 1980, pp. 99-103).

Acampora, Sabella and Harrington have been discussed above in regard to claims 1-10, 19 and 23-26. The difference between Acampora, Sabella and Harrington and the claimed invention is that Acampora, Sabella and Harrington do not teach a programmable connection. Freeman teaches in Section 12 stored-program control (SPC). Freeman teaches in Section 12.2 to store program in memory and use processor or computer to execute instructions which has

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been stored as program. One of ordinary skill in the art would have been motivated to combine the teaching of Freeman with the modified switching system of Acampora, Sabella and Harrington because SPC provides fast and complex control to the switching system while modification and upgrade to switching system can be done easily. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use SPC for controlling the modified switching system of Acampora, Sabella and Harrington, as taught by Freeman, because SPC provides fast and complex control to the switching system while modification and upgrade to switching system can be done easily.

Regarding claim 27, Sabella teaches an optical cross-connect.

Regarding claim 29, Freeman teaches to use a processor or computer as a switch controller.

Regarding claims 30-31, Sabella teaches in FIG. 10 star couplers 72.

Regarding claim 32, Sabella teaches in FIG. 10 optical filters 62.

6. Claims 22 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acampora, Sabella, Harrington and Freeman as applied to claims 20-21, 27 and 29-32 above, and further in view of Koren et al. (U.S. Patent 6,208,454 B1).

Acampora, Sabella, Harrington and Freeman have been discussed above in regard to claims 20-21, 27 and 29-32. The difference between Acampora, Sabella, Harrington and Freeman and the claimed invention is that Acampora, Sabella, Harrington and Freeman do not teach any particular technology for implementing components of the switch. Koren et al. teaches in FIG. 1 a wavelength converter using SOA. One of ordinary skill in the art would have been motivated to combine the teaching of Koren et al. with the modified switching system of

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Acampora, Sabella, Harrington and Freeman because the wavelength converter of Koren integrates laser and interferometer together for minimizing coupling loss and also provides controllable gain for the input signal. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use SOA wavelength converter, as taught by Koren et al., in the modified switching system of Acampora, Sabella, Harrington and Freeman because the wavelength converter of Koren integrates laser and interferometer together for minimizing coupling loss and also provides controllable gain for the input signal.

Allowable Subject Matter

7. Claims 11-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. Claims 33-61 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Conclusion

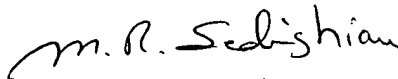
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

skl
16 January 2005


M. R. SEDIGHIAN
PRIMARY EXAMINER